WE CLAIM:

1. A power piston apparatus, for a vacuum booster including a booster housing defining a longitudinal axis of the booster, the power piston apparatus comprising:

a booster power piston adapted to be operatively mounted within the booster housing for movement along the longitudinal axis of the booster and having a radially outer surface thereof including an annular groove therein for receiving an integral locking collar of a first diaphragm support; and

a first diaphragm support having a central hole for passage therethrough of the power piston, and an integral locking collar disposed about the central hole for locking engagement with the annular groove in the power piston.

2. The power piston apparatus of claim 1, wherein the first diaphragm support further comprises, an imperforate, generally annular plate extending radially outward from the power piston and defining an outer periphery thereof adapted for fixed attachment of a seal for sealing a juncture between the outer periphery of the first diaphragm support and the booster housing.

3. The power piston apparatus of claim 2, further including a first seal for sealing a juncture between the outer periphery of the first diaphragm support and the booster housing.

4. The power piston apparatus of claim 3 wherein the first seal is a rolling diaphragm having an internal bead thereof for attachment to the outer periphery of the first diaphragm support and an external bead thereof adapted for attachment to the booster housing.

5. The power piston apparatus of claim 1 wherein the locking collar includes one or more spring tangs that expand for sliding the first diaphragm support along the power piston, to position the locking collar in the annular groove, and spring back for engaging and locking the first diaphragm support into the annular groove of the power piston.

6. The power piston apparatus of claim 1 further comprising a diaphragm support seal in the annular groove of the power piston for sealing a juncture of the first diaphragm support and the power piston.

7. The power piston apparatus of claim 6, wherein the diaphragm support seal is retained in the annular groove of the power piston by the locking collar of the first diaphragm support.

8. The power piston apparatus of claim 1, further comprising a second diaphragm support including a tubular generally annular shaped wall thereof disposed about and extending along the longitudinal axis of the booster housing, a first axial end of the tubular wall including a retaining collar for engaging the annular groove in power piston, and an imperforate radially extending flange thereof attached to the opposite end of the tubular shaped wall of the second diaphragm support and extending radially outward to a distal outer peripheral edge thereof adapted for fixed attachment of a second seal for sealing a juncture between the outer periphery of the second diaphragm support and the booster housing.

9. The power piston apparatus of claim 8, further including a second seal for sealing a juncture between the outer periphery of the second diaphragm support and the booster housing.

10. The power piston apparatus of claim 9, wherein the second seal is a rolling diaphragm having an internal bead thereof for attachment to the outer periphery of the second diaphragm support and an external bead thereof adapted for attachment to the booster housing.

11. The power piston apparatus of claim 8, wherein the retaining collar of the second diaphragm support is held in place in the annular groove of the power piston by the locking collar of the first diaphragm support.

12. The power piston apparatus of claim 11 further comprising a diaphragm support seal disposed in the annular groove of the power piston between the first and second diaphragm supports for sealing a common juncture of the first and second diaphragm supports and the power piston.

13. The power piston apparatus of claim 12, wherein the diaphragm support seal is clamped between the first and second diaphragm supports by the locking collar of the first diaphragm support.

14. A vacuum booster comprising:

a booster housing defining a longitudinal axis of the booster; and

a power piston apparatus including a booster power piston and a first diaphragm support;

the booster power piston adapted to be operatively mounted within the booster housing for movement along the longitudinal axis of the booster and having a radially outer surface thereof including an annular groove therein for receiving an integral locking collar of a first diaphragm support;

the first diaphragm support having a central hole for passage therethrough of the power piston, and an integral locking collar disposed about the central hole for locking engagement with the annular groove in the power piston, the first diaphragm support also comprising an imperforate, generally annular plate extending radially outward from the power piston and defining an outer periphery thereof adapted for fixed attachment of a first seal for sealing a juncture between the outer periphery of the first diaphragm support and the booster housing.

15. The booster of claim 14, further including a first seal for sealing a juncture between the outer periphery of the first diaphragm support and the booster housing, wherein the first seal is a rolling diaphragm having an internal bead thereof for attachment to the outer periphery of the first diaphragm support and an external bead thereof adapted for attachment to the booster housing.

16. The booster of claim 14 wherein the locking collar includes one or more spring tangs that expand for sliding the first diaphragm support along the power piston, to position the locking collar in the annular groove, and spring back for engaging and locking the first diaphragm support into the annular groove of the power piston.

17. The booster of claim 14 further comprising a diaphragm support seal retained in the annular groove of the power piston by the locking collar of the first diaphragm support for sealing a juncture of the first diaphragm support and the power piston.

18. The booster of claim 14, further comprising:

a second diaphragm support including a tubular generally annular shaped wall thereof disposed about and extending along the longitudinal axis of the booster, a first axial end of the tubular wall including a retaining collar for engaging the annular groove in power piston, and an imperforate radially extending flange thereof attached to the opposite end of the tubular shaped wall of the second diaphragm support and extending radially outward to a distal outer peripheral edge thereof adapted for fixed attachment of a second seal for sealing a juncture between the outer periphery of the second diaphragm support and the booster housing; and

a second seal for sealing a juncture between the outer periphery of the second diaphragm support and the booster housing.

19. The power piston apparatus of claim 18, wherein the second seal is a rolling diaphragm having an internal bead thereof for attachment to the outer periphery of the second diaphragm support and an external bead thereof adapted for attachment to the booster housing.

20. The power piston apparatus of claim 18, wherein the retaining collar of the second diaphragm support is held in place in the annular groove of the power piston by the locking collar of the first diaphragm support.

21. The power piston apparatus of claim 18 further comprising a diaphragm support seal, clamped between the first and second diaphragm supports by the locking collar of the first diaphragm support, in the annular groove of the power piston, for sealing a common juncture of the first and second diaphragm supports and the power piston.

22. A method for constructing a vacuum booster, the method comprising attaching a first diaphragm support to a power piston by sliding the power piston through a central hole in the first diaphragm support and engaging a spring action locking collar of the first diaphragm support with an annular groove in the power piston.

23. The method of claim 22 further comprising sealing a juncture of the first diaphragm support and the power piston with a diaphragm support seal retained in the annular groove by the locking collar of the first diaphragm support.

24. The method of claim 22 further comprising attaching a second diaphragm support to the power piston and retaining both the first and second diaphragm supports with the locking collar of the first diaphragm support.

25. The method of claim 24 further comprising clamping the diaphragm support seal in the annular groove of the power piston between the first and second diaphragm supports with the locking collar of the first diaphragm support for sealing a common juncture of the first and second diaphragm supports and the power piston.